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January 5, 1988

Project No. 88548

Ms. Patricia Tan 3HW17
Regional Project Manager
U.S. Environmental Protection Agency
Region III
841 Chestnut Street
Philadelphia, PA 19107

Revised Specifications for
Borough of Bally Air Stripper
Remedial Investigation/Feasibility Study
Bally Engineered Structures Site
Bally, Pennsylvania

Dear Ms. Tan:

Per your request, Remcor, Inc. (Remcor) is forwarding a copy of the specifications for the air stripping system, revised in November 1988. These specifications incorporate the design and installation of the second air stripping tower at Bally, Pennsylvania.

Please feel free to contact us if you have any questions.

Respectfully submitted,

Dean R. Parson
Senior Project Engineer

DRP:mah

Enclosures: Specifications for Air Stripping System
Drawing - 88548-E2, REV 2
Drawing - 88548-E5
Drawing - 88548-E6

cc: John A. George (transmittal only)
Stephen M. Wilner
Robert L. Collings, Esquire

BOROUGH OF BALLY
WATER WELL NO. 3
AIR STRIPPING SYSTEM

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BOROUGH OF BALLY

WATER WELL NO. 3

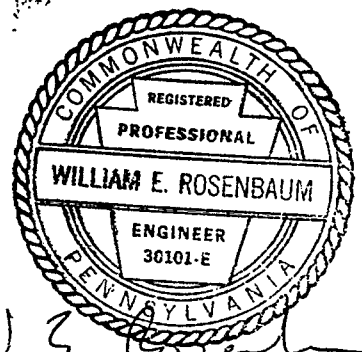
AIR STRIPPING SYSTEM
REVISED SPECIFICATIONS

NOVEMBER, 1988

PROJECT NO. 88548

REMCOR, INC.
PITTSBURGH, PENNSYLVANIA

REMCOR, INC.
PITTSBURGH, PENNSYLVANIA



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BOROUGH OF BALLY
WATER WELL NO. 3
AIR STRIPPING SYSTEM
SYSTEM SPECIFICATIONS

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BOROUGH OF BALLY
WATER WELL NO. 3
AIR STRIPPING SYSTEM

REVISED SYSTEM SPECIFICATIONS
NOVEMBER 1, 1988

1.0 AIR STRIPPING SYSTEM

The existing air stripping system will be modified to include a second air stripping tower to supplement treatment of water from Well No. 3. The two air strippers will be installed to operate in series to remove volatile organic carbon (VOC) compounds from the Well No. 3 water discharge.

Removal of VOC's are defined by the maximum contaminant levels (MCL) established in the Safe Drinking Water Act or the maximum discharge limitations established in the National Pollution Discharge Elimination System (NPDES) Industrial Permit No. PA 005123 in compliance with the Clean Water Act. The lowest concentrations as established by the MCL's or the NPDES discharge limitations will be used to design the maximum levels of VOC's in the treated water, see Table 1.

The new air stripper will be installed adjacent to the existing air stripper system. Water from the Well No. 3 will be pumped to the top of the new stripper for first stage treatment. The effluent from the new stripper will be pumped to the top of the existing stripper. The existing stripper, or second stage treatment, will further reduce the levels of VOC's for transfer to the water supply system or discharge to the adjacent stream. The process and control diagram for the new system is shown in the attached drawing no. 88548-E5.

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The installation drawing for the existing stripper system and the new air stripper are shown in drawings, 88548-E2-Rev 2 and 88548-E6 respectively.

The modifications to the existing air stripping system will include furnishing and installing the following:

- Air stripping column
- Transfer pump
- Foundation, and slab
- Piping modifications
- Electrical modifications.

The following specifications are intended to establish performance requirements and design and construction standards that will be observed in the construction of the air stripping system.

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2.0 AIR STRIPPING COLUMNS

The installation of the second air stripper to supplement the existing stripping tower is designed to remove organics.

2.1 EXISTING AIR STRIPPER

Following are specifications for the existing column:

Design Flow	300 gallons per minute (gpm)
Type of System	Packed tower air stripper
Dimensions	4' diameter by 32' high with 300-gallon sump
Packing	Structured plate type
Material of Construction	Column units: • High-density polyethylene (HDPE) Structural members: • Carbon steel
Blower	8,400 SCFM, 7.5 horsepower (hp), 3 phase (φ)/60 Hertz (Hz)/ 208 volts (V)

The existing air stripper is skid-mounted and complete with all integral piping. The blower duct work and blower enclosure was furnished pre-assembled on the skid.

Connections to the stripper are Type 1 polyvinyl chloride (PVC). Fittings 2 inches and larger will be 150-pound flanged; fittings smaller than 2 inches will be NPTF. Flow is introduced to the tower through a Type 1 PVC spray nozzle. A Type 1 PVC crimped plate, impingement-type mist eliminator is installed at the tower exhaust opening. All metal components is coated with an alkyd or enamel system.

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2.2 NEW STRIPPING COLUMN

The second air stripping column will be installed to supplement the treatment of the existing system. The following are the specifications for the column:

Design Flow	300 gpm
Type of System	Packed tower air stripper
Dimensions	4 foot diameter by 24 feet high with a 100 gallon sump
Packing	Structural plate type
Materials of Construction	Column units: •HDPE Structural members: •Carbon steel
Blower	8,400 cfm, 7.5 hp, 3 ϕ /60 Hz/208V
Transfer Pump	300 gpm, 72 ft. TDH, Cast iron casing, 3,500 rpm, 3 ϕ /60 Hz/280V

The new stripper will be skid mounted with integral piping. The blower, pump, and liquid level instruments will be furnished preassembled on the skid.

A constant level control system will be furnished to balance the feed rate and the booster pump discharge rate. The system will consist of a float valve mechanism, recirculation flow control valve, and necessary level switches.

Connections to the stripper will be Type 1 polyvinyl chloride (PVC). Fittings 2 inches and larger will be 150-pound flanged; fittings smaller than 2 inches will be NPTF. Flow will be introduced to the tower through a Type 1 PVC spray nozzle. A Type 1 PVC clipped plate, impingement-type

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mist eliminator will be installed at the tower exhaust opening. All metal components will be coated with an alkyd or enamel system.

All new piping for transfer, circulation, and treatment will be PVC construction that will be electric traced and insulated for freeze protection. All internal and connections for the new stripper duplicate the existing stripper.

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3.0 EXISTING BOOSTER PUMP

A booster pump is installed on the discharge side of the existing air stripping column to pump treated water into the distribution system. The following are the specifications for the booster pump:

Flow	300 gpm
Total Dynamic Head (TDH)	165 feet
Type of Pump	ANSI B73.1 process pump - Goulds Model 3196MT
Material of Construction	Cast iron casing; bronze impeller
Electrical:	25 horsepower (non-overloading) 3,500 rpm, 3 ϕ /60 Hz/208 V

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4.0 CONTROL SYSTEM

The new air stripper and existing air stripper are equipped with automatic shutdowns and interlocks to prevent damage to equipment and to prevent pumping untreated water to the stream or the water distribution system. Each stripper is equipped with high and low liquid level switches for emergency shutdown. Low flow air switches, at the discharge of each blower, are installed to shutdown the well pump, and transfer pump, and air blowers in the event the blowers are not supplying air to the stripping towers.

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5.0 FOUNDATION, SLAB, AND ENCLOSURE

The existing reinforced concrete foundation and slab will be extended for mounting and supporting the new air stripper. The foundation and slab will be constructed in accordance with local and state codes.

A protective enclosure is constructed over the existing booster pump. The enclosure is constructed of prefabricated insulated metal panels and equipped with lighting and ventilation.

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6.0 PIPING MODIFICATIONS

Piping modifications and additions will be made to the existing air stripping system piping. All new piping will be sch 80 PVC. All piping will be suitably supported. Exterior piping will be heat traced and insulated. Piping modifications will include the installation of a feed line to the new stripping tower, installation of a transfer pump discharge line to the existing stripper inlet, and a circulation line for liquid level control. Piping will be valved to allow the following pumping arrangements:

1. Pumping the well to the inlet of the new stripping tower
2. Pumping the new stripping tower base to the inlet of the existing stripping tower
3. Pumping the existing tower base to the water distribution system
4. Pumping the existing tower base to the adjacent stream
5. Overflowing the existing tower base to the adjacent stream.

The normal operation will be pumping arrangement of 1, 2, and 3.

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7.0 ELECTRICAL MODIFICATIONS

Electrical modifications will be accordance with the local codes and the National Electrical Code, latest edition. Electrical boxes and controls located outdoors shall be enclosed in NEMA 4 boxes.

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TABLE 1
AIR STRIPPING SYSTEM TREATMENT REQUIREMENTS

ORGANIC CONSTITUENT	CONCENTRATIONS	CONCENTRATION	PERCENT REMOVAL
	AT INLET (μ /l)	AT DISCHARGE (μ /l)	
1,1-dichloroethylene	588	0.6	99.9
1,1,1-trichloroethane	3,793	200.0	94.7
Trichloroethylene	781	<1	99.9
Chloroform	30	2.0	93.3
Tetrachloroethylene	30	1.4	93.3

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EROSION AND SEDIMENTATION CONTROL PLAN

BALLY MUNICIPAL WELL NO. 3 AIR STRIPPING SYSTEM

Project and Site Description

An air stripping system with associated pumping equipment and enclosure will be constructed adjacent to the existing Borough of Bally Well No. 3 Pump House. The system will be installed on a reinforced concrete slab with associated footings. The overall plan dimension of the original slab is 15 feet by 13 feet. The new stripper will be installed on a pad 12 1/2 feet by 8 feet.

The work will be conducted in the southwest corner of the Bally Borough Park on Cherry Street (Figure 1). The site is generally flat and currently vegetated. Drainage is toward an unnamed tributary of the West Branch of Perkiomen Creek.

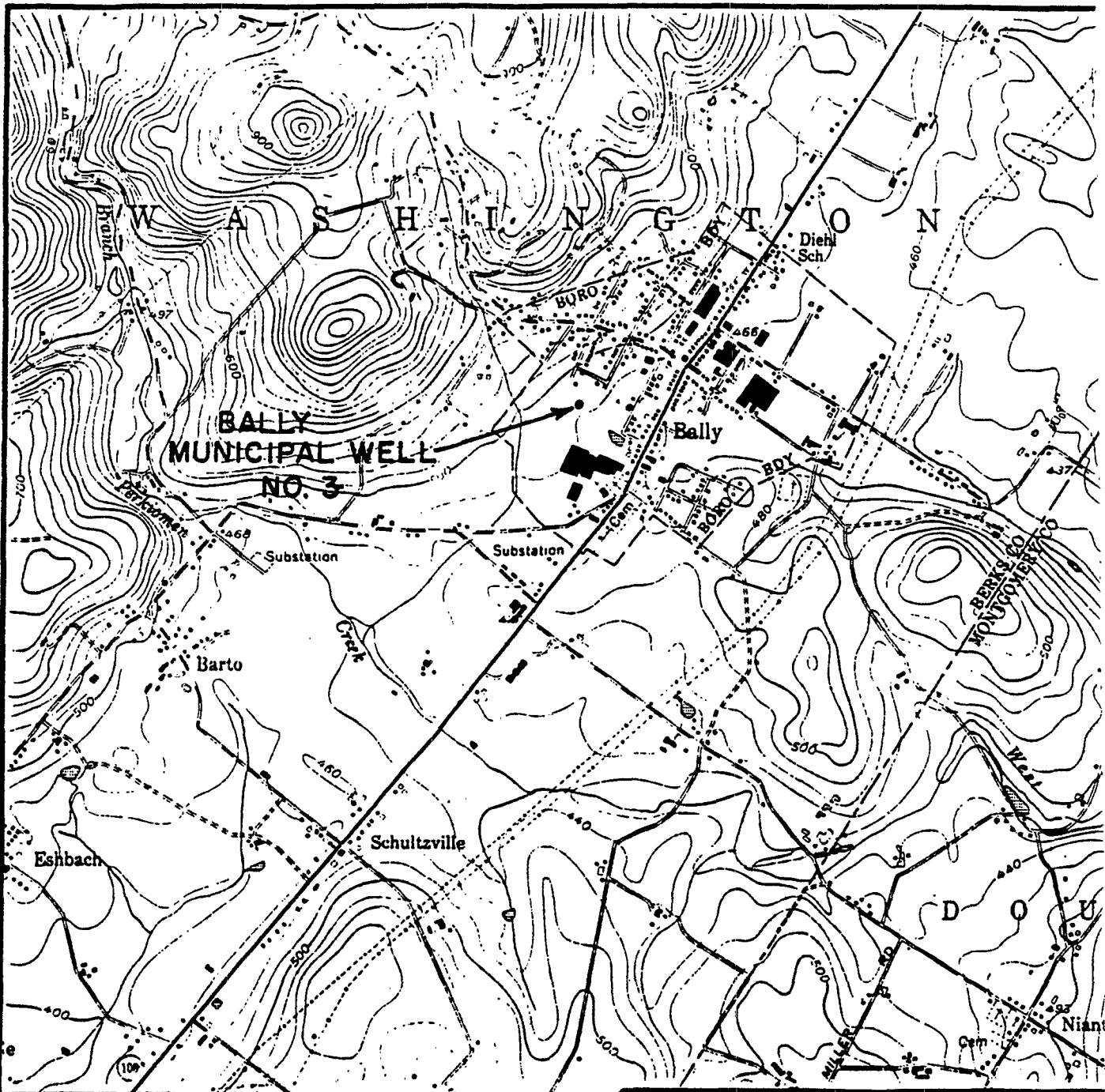
Erosion and Sedimentation Control

The work will involve disturbance of an area approximately 12 feet by 15 feet. Excavation will be required for the installation of footings. Excavated soil and construction materials will be stockpiled on the site.

Sediment transport from stockpiles and excavation areas will be controlled by placement of silt fences around the base of stockpiles and around excavation areas. The silt fence will be placed perpendicular to the direction of runoff flow to intercept any flow from the stockpiles.

All excavations will be backfilled and stockpiles will be removed. Disturbed surface areas will be graded and seeded.

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2000 0 2000 4000
scale feet

REFERENCE:

U.S.G.S. TOPOGRAPHIC
QUADRANGLE, EAST GREENVILLE,
PENNSYLVANIA. SCALE 1:24000,
1956 PHOTOREVISED 1967 AND
1973.

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FIGURE 1

SITE LOCATION MAP

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PREPARED FOR
**BALLY ENGINEERED
STRUCTURES, INC.**

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